

THE CARE OF THE
SKIN IN HEALTH


W. ALLAN JAMIESON



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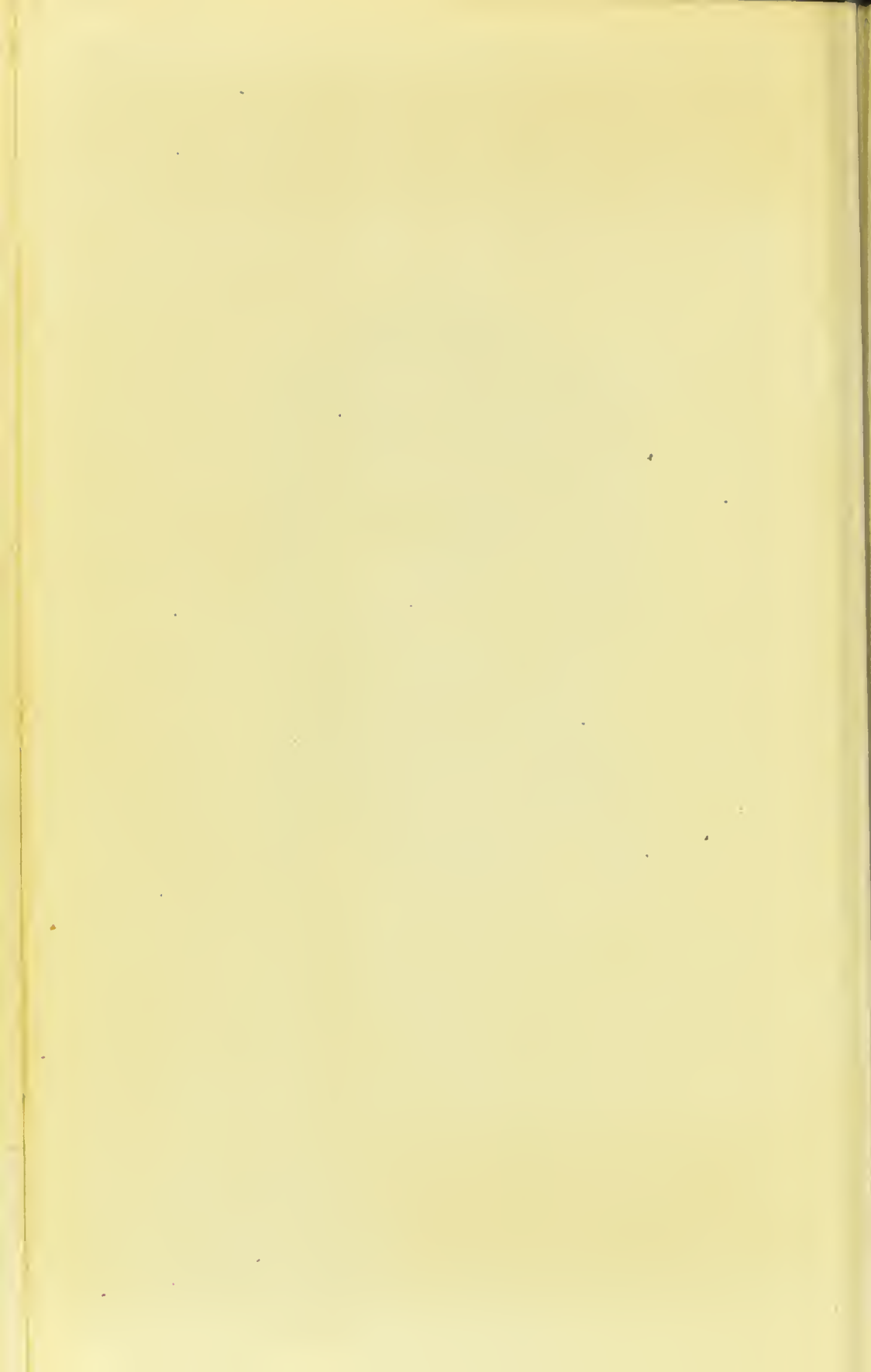
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THE CARE OF THE SKIN
IN HEALTH



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By

W. ALLAN JAMIESON, M.D., F.R.C.P.E.

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PREFACE

THIRTY-FIVE years spent in the study of diseases of the skin, have convinced me that considerable ignorance prevails as to the proper care of the skin in health. It is too readily assumed that every one can intuitively manage his or her skin. The following pages contain a succinct account of the structure of the skin and hair, and succeeding this, short but clear instructions how best to keep them in condition. It is not pretended that in this way disorders of the skin can be always avoided, but by pursuing such a method as that

here indicated, the liability to some will be diminished, and the well-being of an important organ, and through it, of the body generally will be promoted. Every suggestion here made has been carefully tested.

W. ALLAN JAMIESON.

CHARLOTTE SQUARE,

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I

THE STRUCTURE OF THE SKIN

IN order to appreciate rightly the measures requisite to maintain the skin in health, it is necessary as an introduction that a general conception of its structure be formed. While this is not the place to enter into an elaborate anatomical description of the architecture of the human integument, yet, so far that what follows may be duly realized and understood, a brief sketch of its texture must be furnished.

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The skin constitutes the limiting envelope of the body in its relation to the external world. By its means we feel, we are conscious of contact. It acts as a protective covering to the various organs which it encloses, and therefore has two surfaces, one visible and smooth, where not thickly invested with hair; and one concealed from us, resting on a loose substratum containing fat, beneath which are fibrous membrane and masses of muscle or bone. This inner aspect has been rather neglected hitherto, attention having been paid, too exclusively, to the conspicuous exterior. Yet it is from below that the nourishment required for the growth and sustenance of the skin is

derived, hence it cannot be disregarded with impunity.

The skin consists of various layers, the thickness of which is modified in relation to the situation and the calls to be made upon it. Thus it is delicate and flexible on the eyelids, thicker and more firmly bound down on the palms and soles. In some regions it is densely, in others sparingly provided with hairs, and the full length attained by those is not invariably explicable. While its surface is quite smooth in many parts, it is more or less wrinkled in others, and this tendency to corrugation increases with age, or alters in different conditions of health and nutrition. In colour too, it exhibits wide

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modifications in conformity with race and locality.

The mass of the skin is composed of a central felt-like substance, tough yet at the same time delicate and elastic, which when tanned, as in the case of the hide of the lower animals, gives body to leather. This, called the corium or dermis or true skin, is a meshwork of fine transparent fibres, crossing and recrossing, the bulk of which consist of connective tissue, but, ramifying through these are strands of elastic tissue, muscle fibres, both of the striped and unstriped varieties—one or other preponderating in particular localities, according to the requirements of the region—blood and lymph vessels, and

nerves on their way to end in the vessel walls, in special terminal organs, or in the epidermis. The upper portion of the corium where it comes into intimate relation with the epidermis, is raised into ridges, or assumes the form of pointed projections, the papillae of the skin, which thus extend the area of contact, and allow of a more plentiful supply of blood to the actively growing deeper cells of the epidermis, which rest on them, and derive their nourishment from them.

On the corium is a single row of columnar cells with oval nuclei. These are set vertically, and possess the property of producing unceasingly daughter cells by budding. They may therefore be termed

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the mother cells of the epidermis, for the daughter cells on the contrary do not divide, but are gradually pushed upwards towards the surface, by fresh layers of cells formed beneath them. They are thus, after passing through various phases, eventually transformed into the horny film or cuticle, which constitutes the very outside of the skin. The cells themselves are composed of a network of spongioplasm, the threads of which extend beyond the cell, and serve to unite it to its neighbours. The intervening space is occupied by a fluid having nutritive properties. This stratum has had different names attached to it; perhaps it is best known as the epidermis or mucous layer of the skin. Two or

three rows of the cells in the uppermost part take on a peculiar aspect. These are spindle-shaped, and lie with their long axis transversely. They are filled with granules, which appear dark by transmitted light. Hence this has been called the granular layer. These seem ultimately to undergo further changes, into a fatty or waxy constituent found in the cuticle. In some places where the epidermis is thick and is subjected to pressure, as on the palm, there is seen a semi-transparent line above the granular layer and separating it from the cuticle.

The cuticle or horny layer serves to protect the mucous layer and true skin, owing to its dense and resisting quality.

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It forms the surface which we see and touch, which guards from the invasion of microbes and defends from mechanical injury. It is thickest on the palms and soles and thinnest on the face. It is being constantly added to from below, while it is rubbed off as fine particles which separate from its exterior. This shedding is nearly imperceptible in health, but it makes up the larger part of the powdery cloud visible when a stocking is shaken after having been worn for a few days. The flake-like, dry cells of which the horny layer consists, are so closely packed together that no spaces exist between them. According to Pembrey, this outer coat, often described as a degenerate dead tissue, possesses a

function of the greatest importance. The chemical changes which it undergoes produce not only a protective horny material, but also a fatty or waxy substance within it, which preserves to the skin an adequate supply of moisture, and at the same time prevents it from becoming too readily sodden by any excess. This fat, encountered in the deeper as well as in the most superficial strata of the cuticle, renders the skin to a certain extent waterproof.

The colour of the skin is chiefly due to the pigment deposited in the cells of the deepest strata of the mucous layer, immediately above the corium. In the negro, pigment is likewise present in the true skin. Its intensity varies greatly in the

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different races of mankind, and even in them as regards locality. Thus the hue is darker in the armpits or in the vicinity of the nipple. The ultimate source of the pigment can no doubt be traced to the blood, but it is manufactured, so to speak, by the epidermic cells themselves, and lodged within their structure as fine granules. In albinos there is an entire absence of pigment, and exposure to the sun's rays does not in them occasion sunburn, merely reddening through dilatation of the superficial capillaries. In certain diseased states too, as in leucoderma and leprosy, pigment disappears wholly or partially from the skin. With these exceptions, the skin of the white man becomes brown on exposure to the

sun, wherever it is not covered by clothes. It is not the heat rays, however, which produce this change, the property resides in the actinic ones. A negro, undressed, can withstand sunlight so intense as to be unsupportable by Europeans not defended by special clothing. Pigment must therefore be regarded as a safeguard provided by nature against the injurious action of these rays. The skins of some become much more readily darkened by similar exposures than do those of others. This may be due to differences in the chemical changes which their living tissues undergo, in their metabolism as these are termed; or it may be owing to variations in the activity of ferments existing in their

tissues, which are held to influence pigmentation.

Pigment tends to grow less during winter, when the sun does not rise so high, and its light contains fewer of the ultra-violet rays, and specially diminishes in town residents, who pass much of their day indoors. Hence in early summer before the integument has been inured, sudden or prolonged exposure to wind or sun, does not merely darken the skin, but causes it to inflame and blister. Protection is only acquired by degrees and gradually. This may be facilitated and the annoyance lessened, by interposing fabrics of a brown colour between the skin and the sun, as by wearing a brown veil, or using a brown

parasol or umbrella. The same result can be attained by staining the exposed skin by means of walnut juice, or by painting it with a lotion containing raw umber. In this way the legs of sportsmen accustomed to trousers and adopting the kilt, can be saved from painful hacks or excoriations. Climate indeed exerts a marked effect, and the more constant and abundant the sunlight the darker, as a rule, the hue of the residents.

Beneath the corium or true skin, and almost to be regarded as part of it, since it is not separated from it by any very distinct line of demarkation, lies the subcutaneous connective tissue—a loose, open network of fibres. In it are embedded

masses of fat which pad, protect, and round the figure, and assist in maintaining the pliancy of the skin. This fat, fluid at the normal temperature of the body, is enclosed in cells having a very fine membranous wall. This envelope seems to be a permanent structure, for in case of emaciation the fatty material is absorbed, but the cell wall and nucleus remain, and, when embonpoint is restored, the fat reaccumulates. The openness of texture permits the skin to move as a whole, and here water collects in dropsy.

Still deeper and dividing the subcutaneous tissue from the skeleton or bony framework, lie the muscles of the body, on whose contraction movements depend. These if

not directly concerned in the nutrition of the skin, yet indirectly, as will be seen, render good service in its conservation, and in considering its management, their efficiency cannot be neglected.

There are two kinds of muscles distributed through the skin. One of these is scarcely found except in special regions, as the face, hand, etc., the other nearly everywhere. The first form is distinguished by being marked with fine cross bars or lines, and is under voluntary control. By the contraction of its fibres the skin is thrown into folds, and thus we are able to express feelings and emotions, slight changes in certain muscles giving an entirely different cast to the features.

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More important as regards the well-being of the body are the plain or involuntary muscles. These are not directly under the influence of the will, but contract and relax in response to alterations of temperature, or to mental states, as fear, which causes contraction, and blanches the face, or shame, leading to relaxation, which permits of an over-filling of the vessels of the skin, and the tell-tale blush appears. Those involuntary muscles are arranged in various ways. Some obliquely, which, when they contract, compress the component parts of the skin together, and make it thinner. Some lengthwise, at the bases of the papillae; these check or regulate the outflow of perspiration. Some to the

hair glands, embracing the sebaceous follicles ; these, when they shorten, make the hairs stand up and squeeze the oil from the associated oil-glands, thus preventing it from drying up, and so choking the apertures.

When the surface is exposed to cold, these little muscles contract in all directions, and, aided by the muscular fibres of the blood vessels themselves, which act in concert, lessen the amount of blood in the skin. The production of sweat is at the same time diminished, and evaporation being so reduced, the natural heat of the system is conserved. When, on the contrary we are exposed to heat, or, what is practically the same thing, when we exert

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ourselves and thus become warm, or if some diffusible stimulant is imbibed, these muscles slacken, allow more blood to flow to the surface, the sweat glands act with increased energy, and the dampness so produced in volatilizing cools down the exterior, and the uniform temperature of health is preserved. In health the regulating nerve influence and the resulting secretion of perspiration are harmonious, but in disordered states this unison may be disturbed, so that the skin may be congested yet dry, or blanched and drenched in sweat.

The skin is plentifully supplied with blood, and the vessels form three principal networks. One of these is arranged in a horizontal manner in the subcutaneous

tissue, and deeper part of the true skin, and there the vessels attain a considerable size. Another also horizontal but delicate, lies at the bases of the papillae, and sends loops into these, so coming pretty close to the surface. A third surrounds the glands of the skin, and ministers to their nutrition. The blood vessels of the face, and those of the hands and feet, are exceptionally large. As in all other parts, the blood is conveyed to the skin by arteries, and from it by veins, which communicate by fine hair-like tubes, the capillaries.

The nerves of the skin are both of the medullated and non-medullated or vaso-motor variety. They convey the sensation of contact with external objects to the

brain, of pain, of heat and cold, indicating the necessity for protection, and they control nutrition. Though mainly found in the corium, the finer filaments have been traced as far as the second or third row of the cells of the epidermis. They are also supplied to the hair follicles and sebaceous glands.

Implanted in the skin at various depths are three species of glands. One of these provides perspiration, another an oily material, and a third hair.

The sweat glands consist partly of a coiled-up tube lined with secreting cells, and placed deep down in the subcutaneous tissue, among the fat cells ; partly of a long duct also lined with cells, leading upwards

from the coil, and pursuing a wavy though nearly vertical course ; partly of a tunnel without any proper walls, piercing the epidermis, and where the horny layer is thick, running through it spirally. This coiling of the deepest part of the gland largely increases its secreting surface, and enables a copious amount of sweat on occasion to be rapidly discharged. Within the secreting cells fat granules have been demonstrated. The openings of the sweat glands, which are set with considerable regularity, can be seen, for example, by aid of a magnifying glass, on the points of the fingers, between the ridges there present. These are popularly known as the pores, yet it does not appear that the mere number of

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the glands in any particular locality absolutely regulates the quantity of sweat poured out from that part. Thus, though the face, neck and throat are less liberally supplied with sudoriferous glands, they sweat more readily and freely, except under morbid conditions, than do the palms which are much more plentifully furnished. The explanation of this probably lies in the greater thickness of the corneous layers in the last-named locality.

Sweat is a compound fluid, consisting largely of water with about two per cent. of solid matter, chiefly common salt, and some fat. It is continuously excreted, but, though the openings on the surface are free, no sweat can, when the body is at

rest and not too warm, be seen to issue from them. This is due to the spiral arrangement of the outer portion of the duct, by means of which the delayed perspiration soaks the very exterior of the horny layer, where the squames are in process of being loosened, and so keeps the integument pliant and moist. It is imperceptibly exhaled from the surface, constituting what is known as "insensible perspiration." Perspiration, indeed, is properly this transudation or exhalation of moisture from the surface, while sweating is the more active out-pouring of fluid from the coil glands. The total quantity of watery fluid which thus escapes from the skin has been calculated at two pounds or

pints daily. This is largely increased by exercise, heat, etc., and bears in general a direct relation to the amount given off by the kidneys and lungs. The reaction of the sweat is as a rule acid, but this may vary. In health, when profuse, its acidity is less, in rheumatic fever it becomes intensely sour.

We have seen that the insensible perspiration is diffused and lost among the outer epidermic cells, much in the same way as a stream disappears in sand. This accounts for the harshness of the skin experienced more or less by all in winter, and especially during the prevalence of north and east winds. When such blow, the perspiration is lessened, the exterior

layers of the epidermis are insufficiently lubricated, hence the corneous film splinters and grows rough.

Perspiration may be unduly excessive even in the presumably healthy, but some fault in their system predisposing to this is usually discoverable. In a local form, as affecting the feet, palms, or armpits, profuse sweating is fairly frequent. Even when not superabundant, the moisture given vent to acquires, in some, an unpleasant odour, distressing to the sufferer and perceptible to those near. The cause seems to be due to decomposition of the sweat, apparently brought about by the action of a microbe discovered by Dr. Thin. On the other hand some persons hardly per-

spire at all, even on the hottest day. Such bear alterations of temperature badly, while their harsh dry integument feels uncomfortable, and readily hacks and fissures.

The muscles, blood vessels, nerves and sweat glands of the skin, all combine in maintaining and regulating the temperature of the body as a whole. The nervous system controls both the blood supply and the muscular contractions. When the body becomes too hot, the blood vessels dilate, more blood flows to the surface, and this is again cooled down by the evaporation of the perspiration, or by the external air, on exposed parts.

Though our clinical thermometers mark

98·4° Fahr. as the normal temperature, yet this means no more than that any rise above that level encroaches more or less on fever heat. In fact, as a rule, no part of the free surface of the body quite attains that degree in health. It is true that if we place the thermometer in the armpit, and keep it there for five minutes, the mercury may rise to 98·4° The body temperature is constantly fluctuating within certain restricted limits. We are conscious that our skins are “hot” or “cold” as the case may be, yet we cannot define the sensation precisely. The temperature of the trunk is much more uniform than that of the less completely covered or uncovered skin of the limbs or face. Be-

sides differences in locality, however, there are differences innate in the individual. Some persons are much more impressionable with respect to heat and cold than others. Their skins respond more or less rapidly to the changes in external temperature.

As Dr. Pembrey—to whose admirable lectures I am deeply indebted—pertinently remarks, it is possible to study the temperature of the skin indirectly as well as directly. As we have seen, the closely set capillaries are brought very near to the surface in the cutaneous papillae, hence the colour assumed by the skin is an index to its state of vascularity at the moment. The skin appears white when the vessels

are in a condition of contraction and little blood reaches the surface. An extreme example of this is manifested in "dead fingers," where no blood whatever gets to the affected digit. When the capillaries are well filled with properly aerated blood, the skin assumes a red or crimson tint. But when contraction is not uniform, and blood of a venous type is contained in the superficial vessels, the surface is "blue with cold." Some individuals, though in all respects active and healthy, are naturally pale. Perhaps their skins are really less vascular, or their epidermis is unduly thick and non-translucent.

Climate exercises a marked effect on the temperature of the skin. In a still atmo-

sphere, which is at the same time warm and laden with moisture, activity both bodily and mental is lowered. When effort is made under such conditions, the temperature rises, the pulse becomes accelerated, and radiation and evaporation from the surface are disproportionately great. Unless, therefore, the work contemplated be carried out with due regard to the warning conveyed by the uncomfortable sensations, health is apt to suffer. The injury is minimized should the air be dry and in motion, even though its actual temperature is fairly high. The proportion of subcutaneous fat considerably influences heat endurance. The stout man feels the cold of winter less, and may suffer more from

heat in summer than the spare. When the temperature of the skin has been in any way artificially raised, sudden or incautious exposure to cold, as from passing from a warm atmosphere within the house, to a cold one without, produces what is called "a chill." This sensation is ascribable to the rapid checking of sweating or free transpiration of moisture, as a sequence of the contraction of the muscles of the skin, which simultaneously shrinking, dislodge the blood from the periphery. If the normal circulation be soon restored, no harm may be done in the case of the robust ; but if the exposure be protracted, and recovery of normal tone not speedily attained, then evil consequences are apt to ensue.

The simplest conception of the hair follicle, is to regard it as a pocket formed in the skin, by the inversion of all the layers of the epidermis. Its base may be set in the true skin, or in the subcutaneous tissue, as the hair which is to grow from it is to be a fine downy one, or strong and coarse. In all situations it becomes narrower, and less in calibre as it approaches the surface. Its most constricted part, called the neck, is just about the level of the papillary layer of the corium. Above this it again slightly expands, and opens directly on the surface. The follicle is set at an angle, and may be straight or curved according to the shape and direction of the hair issuing from it. At the bottom is

found the hair papilla, somewhat club-shaped, plentifully supplied with blood, and provided with sensitive nerves, accounting for the pain experienced when a healthy hair is torn out.

The hair elaborated by the papilla and follicle, may be regarded as corresponding to the cuticle, which, instead of being spread out as a thin protective sheet, is compressed by the exigencies of its mode of growth within the follicle, into a rounded or oval thread. The hair itself is implanted on the papilla, which is received into a dimple at its base. This, the hair bulb, has a speckled appearance, from the presence in it of minute pigmented particles. As the hair in process of growth advances

outwards, its structure becomes more condensed and firmer, so that when it emerges from the skin, it consists of a bundle of fibres, variously coloured in different individuals, bound together by its cuticle, a series of flat scaly plates, the lower of which always slightly overlaps that next above. There exist in the cuticle of the hair, numerous small, regularly disposed spaces, which, according to Pincus, in healthy living hairs, are filled with oil, derived from the sebaceous glands, imparting to the hair its natural brilliancy.

Some hairs have in their centre a pith or medulla, in which are small air vesicles. A hair whose growth has not been interfered with, ends in a tapering point. The con-

version of downy hair on the scalp of an infant, or on the cheek of a youth, into long and strong hairs, is brought about by a further progressive descent of the follicle. It thus acquires more room and a fuller blood supply, and so a larger and more pigmented hair is provided.

Hairs are pretty widely distributed over the surface, but are absent from some localities, of which the palms, soles and lips are the chief. Hairs are not usually quite round, and the more oval the greater the tendency to curl. Though it has been commonly taught that each hair has its own term of life, there is properly no process in man, corresponding to recurrent periodical shedding of the fleece or hair in animals.

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Probably most of the falling out of the hair in man is unnatural. It is true that in combing some hairs come out. These are hairs which, for the most part, have received an injury, have at one time or another been dragged upon. Such in normal conditions are replaced by the growth of a new one from the follicle. The length of the hair and the proportion of loss from day to day, are connected with the state of health of the individual. Hair grows most rapidly in youth, and as age advances it becomes if not always thinner and more scanty, at least shorter. The hair of the head grows on an average about half an inch a month. When the hair is kept moderately short, frequent cutting is thought to promote its

growth, but short hair is less dragged on in dressing it than long, its roots can be better kept free from accumulation of débris at the mouth of the follicle, hence it may not be the cutting, but the result of keeping it short, which favours the more luxuriant growth.

The sebaceous or oil glands, are usually found in connexion with the hair follicles. In the case of the small downy hairs, these seem dependents of the sebaceous glands, while the converse is the case with the larger hairs of the beard and scalp, as each of these may have two or more oil glands attached to it. They are made up of saccules, many or few, and these open into a common duct, which in turn empties

itself into the hair follicle near its neck. The cells in the saccules towards the centre contain globules of oil, but this becomes mixed with epithelial particles, and stiffens into sebum, a partially solid fat, whose office it is to lubricate the hair. It is forced out continuously by the formation of more behind. As some skins sweat more than others do, some are more greasy. This is sometimes due to an over fluid state of the sebum, sometimes to the size and activity of the glands themselves. Indeed they vary considerably in size in different localities, on the nose for example they are particularly voluminous. Through a process of rancidity, decomposed sebum may partly contribute to the production

of the unpleasant odour exhaled from some skins.

The nails are composed of a horny plate, a greatly thickened cuticle, and tend to impart firmness to the point of the finger or toe. The nail is attached on its posterior aspect and below, while at its sides it is received into a fold of the skin, and it presents a free margin in front. Externally it is smooth and glistening, of a rosy pink colour, due to its permitting, from its transparency, the vascular surface beneath to shine through. A crescentic portion, near the root, is whiter and more opaque. The growth of the nail is maintained by a constant succession of fresh cells at its root; it does not appear to receive any increase

from the nail-bed over which it slides, and to which it is intimately united. In front the horny layer of the epidermis turns over and is fixed to the under surface close to the free end.

The tissue of the nail exhibits an active increase in length, which considerably exceeds the waste which takes place at its free edge. Apparently, however, the full length attained is limited, and if uncut it crumbles and breaks off. On the average the renewal of an entire nail takes about six months. The nails grow more quickly in childhood than in old age, in summer than in winter, and on the hands than the feet.

II

THE CARE OF THE SKIN

THE conditions of life under which a highly civilized nation exists, exert an influence on all the structures which combine to make up the organism, but perhaps manifest their modifying power most plainly on the skin. Not merely on its surface, in the delicacy of its tints seen on those parts exposed habitually, as the face and hands, or in obedience to fashion, as the arms, neck, and bosom ; but in a diminution of its natural

unctuousness, a lessening of the hairy covering, and the production of a texture, finer, thinner and not so resistant. Food, drink, environment and occupation, all have their effect; race and heredity stamp their mark on the integument; while various diseases, of which smallpox and acne are familiar examples, modify it in whole or in part. While the value and importance of the skin to the well-being of the body, are factors universally recognized, the methods adopted to keep it in proper plight are not always those best calculated to attain this desirable end.

Among other considerations, the care of the skin should embrace procedures having for their object the promotion of the

regular exfoliation of the effete and semi-detached epidermic flakes which are being continuously shed, and this without any damage to the still sound and compact horny film underneath. Again, it should favour that insensible perspiration, which preserves the pliancy of the skin and the succulency of the epidermis. The proper degree of oiliness of the integument and hair has to be provided for, and carefully selected substitutes for those which nature has failed to furnish, are to be suggested should this unctuousness be deficient. The vascular supply must be maintained in as perfect a condition as possible, and the diminution in number and simultaneous hardening and degeneration of the capil-

laries, which are features of advancing age, retarded. The innervation of the skin has to be reviewed, so that efforts may be made that it be not unduly sensitive on the one hand, or unnaturally blunted, on the other.

It is necessary that the integument as a whole be kept clean, a proposition apparently superfluous, were it not that on this point the most divergent opinions popularly prevail. There are many who think that though the face and hands require daily or more frequent ablution, the rest of the body can be preserved in a perfectly sanitary state by a weekly bath. There is a numerous class who go further than this, and regard it as wholly unnecessary

to wash more than the face, hands and feet at any time. On the other hand, there are some—a small proportion comparatively—who carry deterrent measures to an extreme. The infant, who needs it least, and whose skin bears it worst, since it is yet imperfectly developed, is unmercifully dealt with in the matter of washing; the adult, exposed habitually to agencies which soil the surface, is supposed to be able to dispense with it. No doubt the more active the life, and in consequence the more abundantly the emunctories of the skin discharge their secretions, the less need is there of washing from the point of view of influence on the health of the individual himself; but comfort and con-

sideration for others demand cleanliness, and the general use of the bath is year by year becoming extended over a wider area, and penetrating deeper and deeper into the strata of society.

There is perhaps no opinion in connexion with sanitation more profoundly graven in the British mind, than the necessary association of soap with a bath. To suggest that for cleansing purposes soap can be dispensed with, is rank heresy. Yet in a multitude of instances the habitual use of soap for the ablution of the body and limbs, is certainly a mistake. It may be conceded that, during the day the hands cannot be kept presentable without soap, and there are undoubtedly occupations

which render the skin of other parts so dirty, that these require its assistance for their purification. But at present we are speaking of the morning bath, not of the measures requisite to impart cleanliness to a skin soiled by employment.

Soap when mixed with water breaks up and its alkali is set free. This latter, while combining with, and dissolving the greasy dirt adhering to the surface, at the same time robs the skin of its natural oil, softens the epidermis, and encourages premature shedding of the cuticular scales. In an exaggerated form, the effect of excessive and frequent use of soap, is seen on the soddened and, too often, the eczema affected

hands of the washer-woman. Ammonia, sometimes recommended to soften water, does the same, and as an adjunct to the bath is to be avoided. What should be substituted? This will be made clear after bathing in general has been treated of.

A bath properly adjusted as to temperature serves two purposes, one, that of purifying the skin, the other, that of acting as a tonic. Any degree of temperature beneath that of the body feels cold to it. This is not perceived to anything like the same extent when the surface, denuded of covering, is exposed to air at rest, as it is, so soon as it is immersed in water of precisely the same degree of heat, since water is a better con-

ductor than air. The power of reaction in each individual must therefore be studied, so as to determine how far the tonic action should or can, with safety, be carried. One inured to it, young and in robust health, can stand for a matter of seconds immersion in water near the freezing point, without risk ; but as a rule the temperature of the morning bath should range from 56° to a maximum of 80° Fahr., a medium temperature of 60° being an excellent average one.

The periodicity of the seasons and the alternation of day and night, are to be regarded as indications that human beings as at present constituted are calculated, as a matter of course, to endure variations of

temperature, and such are indeed for them, as for plants, almost necessary for their health, possibly for their continued existence. But man, by clothing adapted to each division of the year, by fires, and by a selected dietary, has in a measure rendered himself independent of heat and cold, and as a consequence acquired a sensitiveness to change of temperature, which lays him open to many ailments arising therefrom. The regulating muscles of the skin, like many of those throughout the body—as, for example, those of the toes—have become impaired in their efficiency from disuse, have even degenerated into a rudimentary condition. It is the object of the cold bath to recall these to the fulfilment of their

proper function, and it is in this way that the cold bath acts as a tonic.

When the surface of the body is suddenly brought into contact with water considerably below its normal temperature in a large bath, a contraction of the cutaneous muscles accompanied by pallor of the skin ensues, manifested by a sensation of chilliness. The blood thus displaced, retires to and distends the vessels of deeper parts, and hence danger might arise from disturbance of function, owing to blood stasis, or even rupture of some weakened capillary. Therefore the old, the weakly, and the very young must be tenderly dealt with in the matter of cold baths. The weakly for the reason indicated; the old from the inelasticity

of their vessels, and their deficient capacity for reaction ; the young as having less heat-producing power, and because they may be unable to interpret their sensations. The degree of cold employed ought to be determined in accordance with the sensitiveness of the bather, and the extent to which he has habituated himself. States of exhaustion after fatigue, or during recovery from illness, are also conditions in which the bath must be used with circumspection, or not at all. Anaemic persons bear the cold bath badly, and should not indulge in it till the anaemia, from whatever cause due, has been remedied.

Some persons become blue or dusky after a cold bath, and complain of a persistent

creepiness. In such reaction is imperfect ; for them water more closely approximating in warmth that of the body, must be, temporarily at all events, employed. Others feel languid and sleepy ; here reaction has taken place, but the nervous centres have been depleted, and for them the shock should in like manner be lessened. To those wholly unaccustomed to the cold bath, initiation ought to be gradual, the warmth of the water in the bath being diminished day by day, till the limit corresponding to the personal equation of temperature in the individual is reached, and when determined this should not be exceeded.

The best form in which the cold bath can be taken is where an amount of water,

sufficient to cover the body when lying in it up to the neck, can be obtained. The most suitable time is immediately on rising from bed in the morning, and before any food has been partaken of. The later in the day the less appropriate does the cold bath become. Its main object is a rousing and invigorating one, and this action is most needed and best borne after the night's rest. The whole of the body should, if at all possible, be plunged into the water, but in the case of women with long hair, this need not be wetted.

In order to economize time, and to derive the fullest advantage from the bath, a systematized procedure should be adopted. Thus the face, and if the hair is short in

men, that also should be treated first, and preferably in a large basin. The water in this ought to have a little warm added, but in so doing must not be made hot, merely barely tepid. One purpose of the bath is to cleanse the surface of the skin from all impurities and accretions with no harm to its structure. Friction alone will accomplish this. No soap, except for the hands, is to be used at the morning ablution. In washing the face a sponge, and laving the water freely on with the hands, are all that is necessary. If desired, however, an india-rubber sponge may be employed with advantage for the face and neck.

In order to cleanse the skin and scrape off perspiration, the ancient Greeks and

Romans were in the habit of using a curved instrument called a strigil, examples of which have been found made of bone, bronze, iron and silver. These had a fairly sharp edge, and in use it was customary to mollify this by dropping oil on it. All the same Suetonius tells us that the Emperor Augustus suffered from plying it too vigorously. The flesh-brush in modern times has been wielded for a similar purpose. But there is nothing so simple and handy as a full-sized loofah, which polishes the integument and frees it from débris more perfectly than any other available appliance. It is cheap, light and thoroughly manageable. For evident reasons, each person should have his own, which when

not in use is hung up by a piece of string passed through the smallest end.

After the face and neck have been washed in the basin, the large bath is entered, the bather lying on his back. First, the arms are rubbed, back and front, with the loofah, while recumbent. Then sitting up, the thighs and legs to the ankle. Following on this, the lower part of the back, the posterior part of the shoulders, the chest and armpits. Standing up, any portions out of the way of previous attention are dealt with. Finally sitting on the edge of the bath, the soles and ankles are carefully scrubbed, and the spaces between the toes are clarified by means of the thumbs, which can be most conveniently passed in, and this latter

procedure should never be omitted. The skin is now rapidly dried, pursuing much the same order as was adopted in washing. The surface is now quite clean, and in most persons shows a pink hue.

But we must now proceed to influence the skin in its whole thickness, and simultaneously to act on the muscular system beneath it. This most essential measure is accomplished by means of the Matto Roller Belt and Young's Rotary Massage Glove.¹ The Roller Belt or Chain consists of a double row of polished wooden balls

¹ These appliances can be had from Messrs. Archibald Young & Son, 57, Forrest Road, Edinburgh. (The Matto Roller Chain was originally brought under my notice by my friend, Dr. R. C. Maclagan.)



MATTO ROLLER BELT IN USE.



revolving on a hinged framework. It is used, held in both hands, as shown in the illustration, to massage the integument. First, diagonally across the back, including the shoulder muscles ; then, directly across the back, transversely. Next, diagonally across the chest in front, over the lower ends of the ribs ; finally, round the thighs and legs to the ankle. In massaging the back, the handles of the chain are held by the thumbs, resting on the ball. When dealing with the front of the body and thighs, the handles are held by the first, second and third fingers.

The front of the abdomen, the pectoral muscles under the level of the collar bones, and the arms, are massaged by means of the

Rotary Massage Glove, which has a series of wooden cups containing revolving corrugated balls, secured on its palmar surface. The total time occupied by the bath is about ten minutes; that taken up by the chain and glove, six.

On completion of the massage, a warm pleasant glow, and an exhilarating sensation of lightness and general well-being, are experienced. Dressing is then proceeded with.

Not only does the scheme described modify the integument, it also serves to develop and harden the muscular system generally, and to keep it in tone and admirable condition. It likewise helps to remove or prevent those vague pains, often



MASSAGE GLOVE.

termed gouty or rheumatic, which are apt to be felt throughout various parts of the body, near the surface. During the day the hands require soap, and that made use of ought to be a good superfatted one, a kind of which there are now many specimens in the market.

Perhaps a few remarks on hot and warm baths may not be out of place. Of hot baths, and by those are meant baths of 98° and over, it may be said, that such ought never to be taken unless under medical sanction or advice. Those under that temperature may be termed warm baths, and the use of such should be restricted to certain specified occasions. After severe exertion, if the bather is prepared to go to

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bed at once, or at least can remain in a properly heated room, a bath from 85° to 95° may be taken, but should be followed by a cold spray or sponge down. Again, if one fears a chill, a warm bath and subsequent rest in bed, may obviate its evil effects. The bath may be supplemented, if thought advisable, by the administration of some hot fluid, or diluted stimulant. These are the main uses of warm baths. They should not be indulged in habitually, but kept for exceptional circumstances.

While the foregoing remarks are applicable to adults and adolescents, the position of babies and young children is somewhat different, and cannot be dealt with on exactly the same lines. It has been inci-

dentally observed that infants are rather harshly treated in respect to washing by their mothers or nurses. Soap is far too lavishly used, and ablution too vigorously performed, when one takes into account that their skins are yet but imperfectly developed. It may be considered heterodox to say that soap should be banished from the nursery, but there can be no doubt that it can and ought to be largely replaced by the ordinary and indiarubber sponge. This used with moderate or gentle friction, will not only cleanse the infant's or child's skin, but maintains the cutaneous glands in activity and good functional condition. Soap and water only act on the surface of the skin, while the indiarubber sponge influ-

ences it throughout its whole depth. The water should not be cold, but neither should it be hot ; a temperature of 70° to 80° is ample in cold, a lower one in warm, weather.

III

THE CARE OF THE HAIR AND NAILS

THOUGH the hair, if kept short, may have been washed in plain water daily, still to maintain it in good condition, it needs in addition, an occasional special shampoo. If long and therefore not washed every day, it requires this attention all the more. There seems to be a prevalent idea that frequent washing of the hair is injurious to its texture. This holds good if ordinary, or even superfatted soap is employed.

Soap may be a necessary agent in the treatment of diseases of the scalp, but under healthy circumstances it should be scrupulously avoided. The most appropriate cleanser is a fluid extract of the bark of the *Quillaia saponaria*, a tree a native of Chili, whose bark contains a glucoside named saponin. This froths when mixed with water, and acts as a bland and natural purifier, free from the drying qualities which soap displays when used to wash the hair. One full teaspoonful of this fluid extract of quillaia, is mixed with half a washhand basinful of warm water, and this is poured through the hair by means of a sponge, for about five minutes, the hair at the same time being gently

pressed. It is then dried with soft, warm towels.

In winter and in town, once a fortnight to once in three weeks is the average interval to be allowed between repetitions of the shampoo. For those living in the country and during summer, when there are no fires, once a month is often enough. When washed in this way the hair is left soft and perfectly clean.

In some individuals the natural oil present in the hair is sufficient to keep it glossy and quite adequately lubricated, but in most persons the hair of the scalp, and even that of the beard and moustache, demands the application of a pomade. Caution is to be exercised in purchasing

ready-made pomades. One never knows how old such may be, how long they may have stood on the shelves, or worse in the windows of a shop, since rancidity is masked by the perfume, yet the harmful effects of such prevail all the same. Thus an impromptu pomade is the preferable one. As the result of many trials one thus compounded has proved the best for all purposes. This is made up of Eucerine, a highly refined wool fat, discovered by Dr. Unna of Hamburg, pure white in colour, and entirely devoid of odour. To render this less sticky, some sesame oil—greatly prized by Egyptian women as a preservative of the hair—is added, and a proportion of Euresol, monacetate of resorcin, which has the power

of lessening the tendency to the formation of scurf or dandriff, and of conserving to a considerable extent the natural tint of the hair, is incorporated with it. Twenty grains of euresol, three drachms of sesame oil, and an ounce and a half of eucerine, make a suitable blend. It has consistence enough to be readily applied, yet it does not impart any visible greasiness.

For combing or dressing the hair, a broad comb, with widely set teeth from end to end, and not one with widely separated teeth occupying one half, and more closely set the other, is to be exclusively employed. This sort of comb is called by hair-dressers "a rake." The closely set teeth are apt to catch and drag upon, or break, the strands

of hair, when the comb is passed through them. Each time before using the comb, the teeth are to be cleaned from back to tip, by means of a small round brush, sold for the purpose at the brushmaker's. If this is not done, the teeth become coated with débris deposited on them from the hair, and the comb does not pass freely and pleasantly through. The points of the teeth too, should be rounded, and not over sharp, else they may lacerate the skin. In like manner the brush should be fairly large, the bristles only moderately hard, and longish. It ought to be washed at frequent intervals with Lux soap and warmish water. In doing so the soap and very hot water are first mixed, and the lather so

resulting is cooled down to the proper temperature by the addition of cold water. The comb brush must not be forgotten when washing the hair one.

In applying the pomade to the hair, the following procedure should be adopted. A little of the pomade is smeared on to the teeth of the comb, along the greater part of its length. The comb is then passed through the hair from scalp to free end of the hair, a start being made at one point and thence advancing all over the head, more and more pomade being put on the comb, till the whole has been gone over. Then the same is done to the beard and moustache. It is advisable to pass the comb through the hair, to free it from entan-

gument, before using the pomade. After using the pomade the hair is gently brushed and arranged. This plan will be found infinitely preferable to that more commonly pursued, of taking some of the pomade on to the palm, and smearing it on to or among the hair. So used the pomade is irregularly distributed.

If the hair is long and shows signs of splitting at the ends, it should be pointed, but there is no advantage in wearing it unduly short; its natural function is to protect the part on which it grows. If a bathing cap is not worn when at the seaside and salt-water baths are taken, the brine should be rinsed out with fresh water after immersion. It would be in all respects

beneficial were each person to carry to, or have at, his hair-dresser's his own brush and comb, and the same may be said even more emphatically with regard to shaving utensils.

There is a fairly prevalent opinion that boys educated at Christ's Hospital, who have their heads habitually uncovered, are less liable to become bald in future years than others who wear hats or caps. Whether this idea is well founded or not the writer cannot determine, but he does know former Blue Coat Scholars, who have preserved thick heads of hair to advanced age. In the case of boys who have reached school age, no harm, and probably good, will result from free exposure of the head to all

weathers, but there is a tendency to carry the view further and to teach that the production of a thick and enduring thatch will be promoted by leaving the heads of infants bare when in their perambulators or in the nurse's arms. This plan is a mistaken one and cannot be defended. For the infant or young child a soft head covering is, in our climate, imperative when out of doors, and its use will promote and certainly not hinder the development of hair. This fashion of denuding a child's head, is, like many fashions, equally senseless and harmful.

The nails of the fingers should be cut round, those of the toes square across, not paring into the corners. The accumu-

lation of dirt beneath the margin of the finger nails, and of that and shed epidermis at the sides of the great toe nails, should be removed by the use of a nail brush and warm water, never picking it away with any instrument. The fold of epidermis which covers over the root of the nail, sometimes advances too far forward for symmetry. If so, it may be gently pressed back, but should not be scraped or cut away.

IV

CLOTHING AND DIET

To preserve the integument in comfort, the underclothing in contact with it should be adapted to individual requirements. The occupation, position, and mode of life of its possessor, as well as the delicacy and sensitiveness of its texture, have all to be borne in mind and estimated, in selecting the materials for covering it. Porosity is an essential quality, but this in some cases may need to be combined with silkiness, or at least smoothness of surface, while in others

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a coarser and rougher grain can be tolerated without discomfort. The combination shape of garment by fitting closely to the skin, by being hung from the shoulders, and by furnishing an envelope of equal thickness all over, best fulfils the wants of the system. It should have short sleeves, but come well down to the ankles. It may be made of one of those soft, unshrinkable woolly fabrics, now so readily obtained in all thicknesses to suit the season, or the susceptibilities of the wearer. Or, in those instances where a specially non-irritating covering is desired, there is nothing better than Indian gauze worn next the skin, and supplemented, should more warmth be called for, by a woollen combination out-

side it. Over this again, in the case of men, an unstarched soft cotton or flannel shirt is preferable to the hard fronted linen one. In women the outer garments ought to be chosen and fitted so as to afford, as far as possible, uniform protection to all parts of the trunk and limbs.

Fortunately the hard silk hat has largely disappeared as a head covering, being replaced, except on particular occasions, by the soft pliable felt or cap. Some, at least, of the bald crowns in men were ascribable to pressure on the temporal arteries by the rigid brim of the silk hat. The blood supply to the scalp was circumscribed, and the parts most remote suffered first. The skin, ill-nourished, tended to contract and

starve the hair roots, and this wasting was augmented by the darkness in which the top of the head was kept. Deprived for hours at a time of air and light, and with a diminished blood supply, it was no wonder that the hair grew thin. Even the felt hat is improved by having a couple of eyelet holes inserted in each side.

A plea for the other extremity of the body, the foot, ought here to be entered. The foot-wear—and the shoe is, when it can be worn, better than the boot—should be sufficiently broad to allow expansion of the toes, and nature-form. By this is meant that the shoe is made straight along the inner line, not tapering to a point in the centre, as if the longest toe was situated in

the middle, and not, as actually the case, the great and second toe at the side. One word as to children's shoes. Care must be constantly exercised that those worn are always plentifully long, else the growing toes, forced back by the over-short and narrow shoe, become cramped and bent at an angle. For the hands, woollen gloves impart most warmth in winter, much more than lined leather ones, unless very wide. In summer any or none may be worn indifferently.

A judiciously arranged dietary is all important in its bearing on the due conservation of the skin. Most persons know from experience what articles of food suit best, and stated in general terms, what one

likes, as a rule, agrees. Butcher meat ought to be but moderately partaken of, green vegetables and fresh fruit should form part of one meal at least. It is to be observed that in process of cooking, vegetables are deprived, through solution in the water, of salts valuable as anti-scorbutics. Steaming preserves great part of those salts, or if the water in which they are boiled is used as soup, as in carefully made Scotch broth, the good qualities remain and can be utilized. But the same end is even better attained by salads, and not merely lettuce, but a number of other herbs can be advantageously employed as such. Our neighbours, the French, might be imitated with much benefit in this respect, so wide is their selection.

Pastry though not banned had better be only occasionally eaten. Milk puddings are very serviceable. Cheese is perhaps best taken toasted. When it is well assimilated, oatmeal as thoroughly boiled porridge may form part of breakfast. Its reputed "heating" tendency, is owing to insufficient cooking. At all meals perfect mastication is essential. In order to derive all the benefit from food which it is capable of giving, it is necessary to eat slowly. As beverages coffee or cocoa are preferable to tea, which, as Sir Jonathan Hutchinson has proved, sometimes gives rise to cold feet and hands, while if swallowed too strong or too hot, it leads to gastric catarrh and consequent indigestion. Tea indeed,

unless partaken of very sparingly, may be said to be ruinous to the complexion. The abuse of alcohol causes in some, at first, temporary, and eventually permanent dilatation of the cutaneous capillaries, chiefly of the face and nose.

As life advances, and when its plane—figured by Nasmyth with happy ingenuity as extending from the thirtieth to the fiftieth year—has been passed, the skin assumes certain characters which may be summed up as follows. It usually becomes thinner, drier, paler, rougher, more wrinkled and in parts inclined to exhibit discolorations and excrescences. Each of these changes demands a few words of comment. The thinning of the skin in progressing age

is owing to a shrinking in all its layers, and of all its constituents. The subcutaneous fat is often largely diminished, or if still present in considerable degree, the adipose cells themselves are no longer full and plump, and so the integument is flabby and lax. It is dry, because thus condensed, and because the sebaceous and sweat glands are atrophied, and as a natural consequence less active. The pallor of the skin is due in part to the causes named, but also because the blood vessels have shrunk in calibre and lessened in number, their walls have undergone degenerative alterations, and at the same time the heart, the central organ of the circulation, contracts more feebly. Metchnikoff regards it as probable that in advanc-

ing age, the lime salts are abstracted from the bones, thereby inducing softness and brittleness, and are deposited in the arteries, rendering them inelastic and hard. The roughness arises in a measure from failure of the superficial layers of the horny cuticle to separate systematically. This normal desquamation is favoured in the active period of life by the alterations in tension constantly taking place ; the skin swelling and again contracting in exercise and repose ; by the friction of the clothes, and by regular ablution ; all of which are liable to be more or less defective or to be in abeyance, as the individual grows older and less careful as to appearance. The wrinkled aspect is produced by the action

of the muscular and elastic elements of the skin, which more readily throw the looser envelope into folds. The discoloration is brought about by a lessened translucency of the denser epidermis, the horny substance tending to become yellow from age ; from accretion of dirt, which clings more persistently to the rougher surface ; and from actual increase in the pigment contained in the deep cells. Occasionally, however, the atrophic skin of the old is peculiarly fine and silky in its texture, though in such circumstances there is commonly an entire absence of perspiration. Warts appear and moles become larger and more conspicuous on the senile skin.

While age attacks the whole bodily

frame with greater or less impartiality, its ravages are perhaps most evident and striking on the skin, and in particular are notably visible in the complexion. Some individuals show signs of decay much earlier than others, and there are undoubtedly many factors which contribute to this. Environment, the wear and tear of life, anxiety and worry, heredity in numerous cases, predispose ; but the influence of such causes and of others not mentioned cannot be readily controlled. There is one element, however, brought to some extent under restraint by recent scientific investigations, which finds its proper place here. We have seen that the blood vessels after middle life, undergo degenerative changes ; these are

connected with the condition of the fluid circulating through them, and therefore its purity has to be diligently provided for.

Microbes are known to play a large part in vital processes, but till lately this rôle has been regarded as always a malign one. This view is erroneous and unscientific. While there are harmful microbes, there are likewise others which are beneficial. Metchnikoff's name is most honourably associated with the discovery of one, and a very important member of the useful group. Many microbes enter the system with our food, and find in the bowels, and especially in the large intestine, suitable conditions for their propagation. Here they set up putrefaction, and it is from absorption of the un-

healthy products so derived, that a contamination of the blood ensues, and as a result of this, a poisoning of the tissues nourished by it. It is Metchnikoff's opinion that it is largely in this way that our precocious and unhappy old age originates. We find in Leviticus the idea clearly expressed, "for the blood is the life of the flesh." That a man is the age of his arteries, is a canon of medicine, and any means which will arrest or postpone hardening and degeneration of these tubes, through which the nutritive liquid flows, will prolong healthy existence. If Metchnikoff's surmise is correct, it is clear that agents which hinder putrefaction in the large intestine, must at the same time defer the advent of old age.

This theoretical view is confirmed by the collation of facts regarding races which live chiefly on soured milk, and amongst whom great ages are common. He has shown that this tendency to putrefaction in the large intestine can be neutralized by introducing microbes capable of setting up lactic acid fermentation, which is a state antagonistic to putrescence. This knowledge of the value of the ingestion of soured milk under many various forms and names, has been arrived at empirically by widely separated nations, but at the best is a rough and ready plan. At the present time active and pure cultures of microbes endowed with the power of converting saccharine material into lactic acid are plentifully obtainable.

Preparations of these are conveniently put up in tablet form, and are to be had from any chemist, but a reliable kind should always be chosen. The tablets may be swallowed in a teaspoonful of jelly or with sweetened water, but milk is the simplest and most appropriate medium, and can be used either as ordinary fresh or as skimmed milk. One point is imperative, no preservative must have been added to it, or the ferment will fail to act.

To prepare the milk, the following method has proved the most reliable. A pint of fresh milk is brought to the boil at night, and boiled for five minutes. This is to sterilize it, as milk constantly contains some objectionable microbes, and in this way

most are destroyed or at least rendered inert. It is then transferred to a jug, and allowed to cool down, till barely lukewarm, say to about 80° Fahr. Two tablets of the selected ferment — personally I use Biolactates (Duncan)—are crushed and added, as also half a teaspoonful of sugar, and the whole stirred. The jug is now set aside, covered with a cloth, and so stands till morning at ordinary room temperature. By so doing a certain growth of lactic acid microbes occurs, but the milk acquires no sour taste. The conversion of the cane and milk sugar into lactic acid by the multiplying bacilli continues after it has been swallowed, and is sufficiently complete by the time the digested milk has reached the large intes-

tine. The bacilli and resulting lactic acid promptly inhibit putrefaction, as is evident to the senses, as the motions passed have practically no odour. Besides this, the regular use of the milk so treated, or, but in a less marked degree, the consumption of three or four tablets daily, initiates and maintains a feeling of well-being combined with the conservation of physical elasticity and mental keenness. In the Greek legend, when Zeus, at the request of Aurora, conferred immortality on Tithonus, the gift did not preclude senescence ; and longevity apart from healthy vigour of body and mind would be an intolerable affliction.

Metchnikoff recommends that the milk be fully soured before being consumed, but

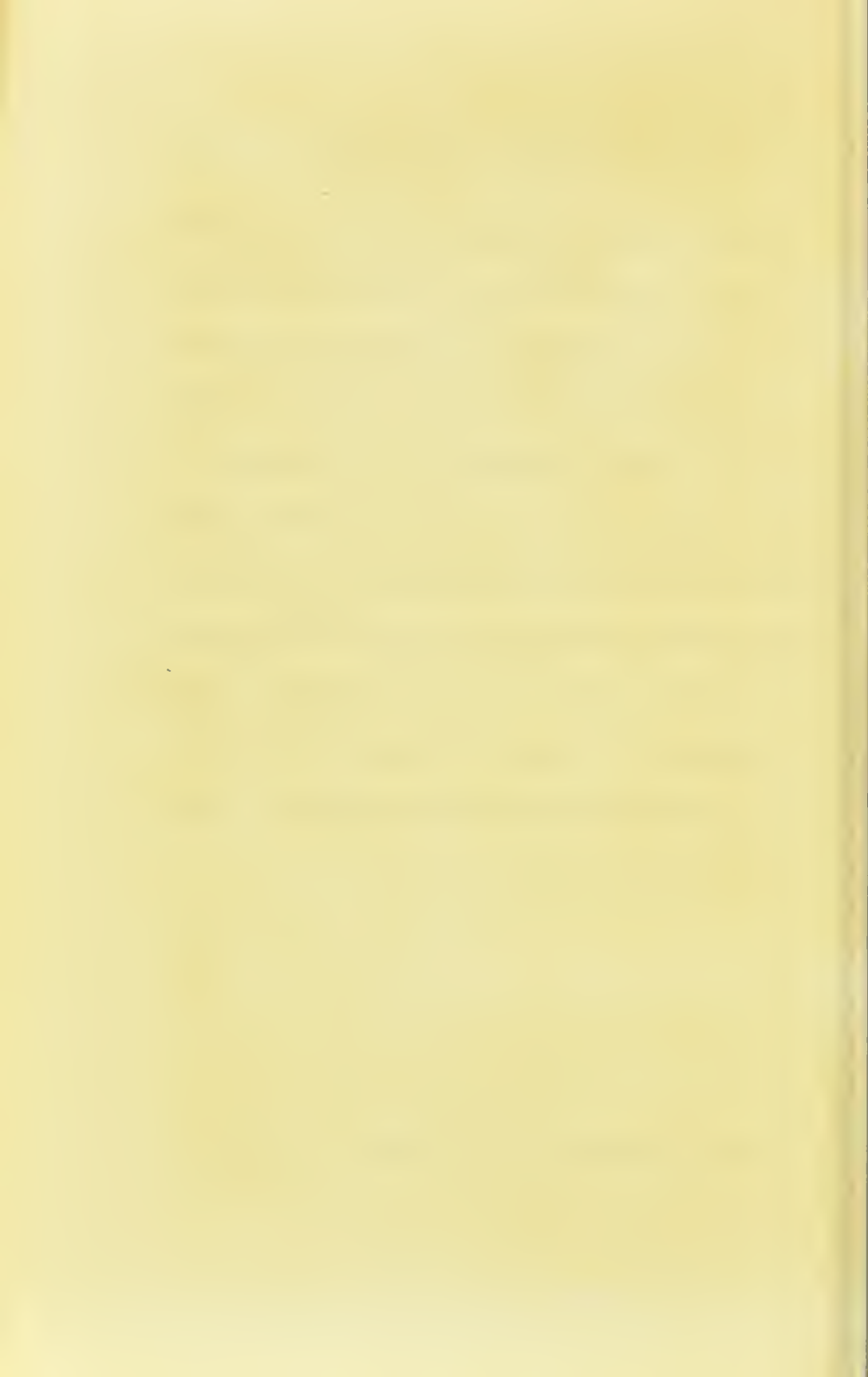
this is undesirable. For one thing milk so dealt with is not so palatable, while that prepared as above is extremely pleasant. Again microbes are most potent at the height of their activity; when fully grown their energy wanes and abates. We wish to have them at their strongest just when they have entered the large intestine, and this is attained by swallowing the milk while the microbes are in process of rapid increase in number and vivacity. The milk should be partaken of in two or three portions, at times distributed over the day, either with or apart from meals. It must not be reheated, or mixed with boiling hot puddings, though it can be taken along with such; nor should it be added to tea or other

beverage. If alcohol is partaken of, it should be in the form of a little light wine or cyder, at late dinner, the prepared milk having been introduced into the system earlier in the day, as their actions are incompatible.

A hint may be given to ladies who wish to have and preserve a good complexion. Sweets in the form of confectionery and chocolates, especially chocolate creams, must be very sparingly indulged in. Whenever there is a disposition to "spottiness" sweetmeats are harmful.

In conclusion, it must be evident that to promote the complete health of the skin, its welfare must be attended to both from without and from within. While an out-

door life is the ideal one, such is not possible in the case of many. Every opportunity of being in the open air and of indulging in exercise, should be seized. But one must bend to the inevitable, and though all the suggestions here made can be carried out with greatest advantage by the country resident, yet in the case of the town dweller, debarred, save on rare occasions, from enjoying the fresh sweet air of the fields, they will be found in some degree to compensate for its loss.





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